PROJECT NUMBER : 4018
PROJECT TITLE : Paper Product Development
PROJECT LEADER : B. L. Goodman
PERIOD COVERED : July, 1991

I. REDUCED SIDESTREAM CIGARETTES (B. Goodman, B. Floyd)

A. Objective: Develop subjectively acceptable cigarettes with reduced sidestream smoke.

B. Results:

Superslims Single Wrap: Sidestream visibility testing was performed on samples of regular and menthol Superslims produced in the initial production of single wrap cigarettes. Visibility reduction was comparable for the regular and menthol versions, ranging from 61% to 67%, compared to Marlboro Lights 100. Testing will continue on subsequent production samples.

Ambrosia: Cigarettes were made with these papers, which were designed to duplicate the Ambrosia POL's from last year. The sidestream reductions measured on the cigarettes were comparable to those from the POL tests, but mainstream data differed. Models made with paper at 2.3 CORESTA base porosity showed 63% reduction compared to Marlboro Lights 100; models with 3.7 CORESTA base paper gave 58% reduction; and models with 4.8 CORESTA base paper gave 56% sidestream reduction.

Paper samples from the different mill runs of 45 g/m^2 low sidestream paper from Kimberly-Clark were examined microscopically with no observed differences in flax and shive content.

Magic: Cigarettes in 24.0 mm circumference configuration were made in Semiworks with binary magnesite paper coated with three levels of potassium succinate, and with ternary paper with some of the same additive levels. Two of the papers were also used in making 23.0 mm circumference models. The binary paper coated with 8% potassium succinate on 24.0 mm circumference cigarettes gave 52% visibility reduction compared to Marlboro Lights 100. This model burned faster than the one with conventional paper, resulting in a mainstream tar delivery of 1mg less than the control. The ternary paper with 6% potassium succinate on 23.0 mm circumference cigarettes gave 70% sidestream reduction and resulted in tar and puff counts equal to the control of the same construction with conventional paper.

The 24.0 mm circumference models were evaluated for their degree of ash flaking during puffing. The ternary papers tended to have more severe flaking than the binary papers; flaking was much worse with no additive on the paper; the more porous papers resulted in more flaking than the tighter papers; and papers sized with potassium citrate were more flaky than those sized with potassium succinate.

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C. **Plans:** Continue the monitoring of sidestream visibility reduction for single wrap Superslims cigarettes.

Coat magnesite papers with additional types of additives and make cigarettes for evaluation of sidestream visibility and ash characteristics.

Perform coating and slitting services as needed of experimental papers for machine-made cigarettes.

Continue single port measurements on handmade cigarettes.

II. PAPER SPECIFICATIONS

A. **Objective:** To develop cigarette wrapper specifications for new product development and support of current products.

B. **Results:** Bobbins of 10-058-A production 26.5 g/m^2 cigarette paper have been obtained at 38, 42, and 47 CORESTA from Cabarrus. In addition, Kimberly-Clark located and shipped a bobbin at 50 CORESTA, which was the highest porosity that could be found. Cigarettes will be made to determine the effect on delivery of porosities at the limits of the current porosity range.

C. **Plans:** Determine the outer Coresta ranges that can be accepted on a product.

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